

PART 2

HEALTH AND SAFETY PLAN

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Follansbee, West Virginia

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### 1.0 Introduction

The following health and safety plan (HASP) was originally prepared by ARCADIS Geraghty & Miller, Inc. and modified by Civil & Environmental Consultants, Inc. (CEC) to ensure the safety of all individuals associated with the field investigation activities to be conducted for Wheeling-Pittsburgh Steel Corporation (WPSC) at the Steubenville East Coke Plant in Follansbee, West Virginia. This HASP is intended for the protection of CEC workers involved in activities requested by the Administrative Order of Consent.

#### 1.1 Facility Description

The Steubenville East Coke Plant is located immediately north of Follansbee, Brooke County, West Virginia on West Virginia State Route 2 (Figure 1). Coking operations and coke byproduct production have been performed at the facility since approximately 1917. Past and current operations performed at the facility include the production of metallurgical-grade coke for use in steel production, the processing of coke-oven gas in the Byproducts Plant, and the recovery of iron units from miscellaneous plant byproducts and ore in the Sinter Plant.

The main plant area is located south of West Virginia State Route 2. The plant can be accessed by two entrances off of Route 2, a truck entrance located at the eastern end of the plant and the main plant entrance manned by the WPSC Guard Gate located in approximately the middle of the plant area. Both entrances are marked by signs on Route 2. Access to the facility is restricted with security at both entrances. The WPSC Guard Gate is manned 24 hours a day.

Plant roads are maintained by WPSC. Potable water is available through connections outside the main office building and near the service water building in the Byproducts Area. Electricity is available in the Byproducts Area and via generators. Phone service is available at numerous locations at the site. CEC field personnel will also have portable mobile phones.

#### 1.2 Field Tasks To Be Performed

Listed below are field tasks anticipated to be conducted at the coke plant. CEC workers performing any of the following tasks in potentially contaminated areas are subject to the rules and guidelines of the HASP.

- Geoprobe Soil Borings/Groundwater Sampling

- Groundwater Monitoring Well Installation
- Hillside Soil Gas Sampling
- Hillside Borings and Wells
- Surveying Wells and Mahan's Run
- Sampling "Tar" Seeps
- Water-Level Measurements
- Groundwater Sampling
- Surface-Water Sampling
- Slug Testing
- Environmental Site Assessments

Other activities that are subject to the rules and guidelines of the HASP are personnel and materials mobilization and demobilization, other liquid (e.g., LNAPL) sampling and air monitoring.

## 2.0 Health And Safety Plan Enforcement

A CEC Safety Officer (SSO) will be assigned to the project; the SSO will monitor adherence to the HASP during field activities, and will ensure that all work is performed in accordance with the health and safety requirements described herein. Field activities at the site shall be performed in accordance with the Federal Standard 29 CFR Part 1910.120 "*Hazardous Waste Operations and Emergency Response*", and applicable Federal, state, and local health and safety regulations.

The SSO and Project Manager will be responsible for implementation, maintenance, and enforcement of all aspects of the HASP program for this project. These individuals are identified in Table 1. The SSO has the overall responsibility for health and safety of all project personnel. The SSO will confer with the CEC Project Manager concerning any modifications to the HASP. The SSO will coordinate and monitor the safety-related aspects of the field program at startup and during all field activities. The SSO may appoint a qualified designee pending approval by WPSC to perform safety-related monitoring of field activities.

The SSO has the option to implement requirements in addition to those described herein on a case-by-case basis. Should an unforeseen or site-specific safety-related factor, hazard, or condition become evident during the investigation, action will be taken to reestablish safe working conditions and to safeguard site personnel, the public, and the environment. Actions taken to safeguard workers beyond those measures described in this plan will be verbally communicated to CEC personnel prior to implementation. These actions will be discussed at daily “tailgate” safety meetings along with other relevant safety issues (Appendix A). Any modifications or additions to the procedures outlined in this HASP will be documented by the SSO and incorporated into the HASP as an appendix.

### **3.0 Site Security**

All persons must be approved by the SSO for entry to areas where work is being performed. All persons entering work areas must meet medical surveillance and training criteria set forth in this document, as enforced by the SSO. The SSO has the responsibility for final site entry approval and for removal of unauthorized personnel.

During work activities, access into the area where work is being conducted will be controlled by the SSO. The location of the work zones will change depending on the field activity being conducted. A record of Safety Meeting Forms for each work zone will be maintained by the SSO (Appendix A). A Safety Meeting Form will be filled out for all persons entering a work area; this form indicates that health and safety issues related to the site have been reviewed. Additionally, the Safety Meeting Form has a signature requirement to confirm that all personnel participating in on-site activities have been briefed on health and safety issues.

### **4.0 Evaluation Of Potential Hazards**

#### **4.1 Potential For Exposure**

In order to evaluate the potential for employee exposure to chemical hazards during the proposed field activities, the toxicological properties of chemicals identified during previous investigations at the sites, or are suspected to be present, were compiled and reviewed. Results of this review were used to identify potentially harmful substances which could be encountered during investigative activities at one or all of the sites and

to determine the principal pathways of contaminant exposure. A summary of the health effects for the identified compounds are summarized in Table 2.

Compounds known, or suspected, to be present at the site include: polynuclear aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), benzene, toluene, ethylbenzene, and xylenes (BTEX), total petroleum hydrocarbons (TPH), ammonia, sulfate or sulfur, cyanide, arsenic, barium, cadmium, chromium, and lead. All of these compounds may not be present at every location of the site.

### 4.2 Exposure Pathways

The principal pathways of exposure to the compounds listed above are via direct contact (skin or eye), ingestion of contaminated soil or water, and by inhalation of contaminated particulate matter or vapors.

#### 4.2.1 Inhalation

Due to the relatively low volatility of most of the compounds under normal atmospheric conditions and the fact that many of these compounds appear strongly bound to the soil matrix, atmospheric exposure of contaminated soils or groundwater should not result in significant air-borne concentrations of the constituents. However, organic vapors, from some PAHs (primarily naphthalene) and the BTEX compounds, could become concentrated under certain circumstances possibly resulting in a potentially hazardous condition. In addition, ammonia and sulfuric acid vapors could pose an inhalation concern. Atmospheric monitoring of work areas, coupled with respiratory protection, where needed, will be employed to prevent the occurrence of potentially hazardous conditions. The degree of respiratory protection to be adopted will be dependent upon monitoring results and the tasks to be performed, but may consist of full-face air-purifying respirators. Supplied air respiratory protection is not included in the scope of this HASP.

#### 4.2.2 Dermal Contact

Absorption of the compounds via dermal pathways could occur if contact is made with tarry residues or with fluids or solids containing substances of concern. Protective garments to be worn by personnel handling potentially contaminated media will afford protection against these substances. Personal Protective Equipment (PPE) to be employed by personnel will be resistant to the substances which may be encountered. Safe Work Practices and Personal Protection Requirements are described in Sections 7.0 and 8.0, respectively.



### 4.2.3 Ingestion

Chemical exposure through ingestion is another avenue of exposure to compounds. Ingestion of matrices containing potentially hazardous substances will be controlled through the use of good personal hygiene and enforcement of work area prohibitions outlined in Sections 7.0 and 8.0.

### 4.3 Physical Hazards

Injuries resulting from physical hazards can be avoided through the adoption of safe work practices and employing caution when working near machinery. Safe work practices to be employed during on-site activities are described in Section 7.0. Injury that may result from physical hazards existing on a work site include:

- Slip-trip-fall types of accidents;
- Back injuries due to improper lifting;
- Casualties resulting from being caught in, or struck by, moving or rotating equipment;
- Electrocution associated with installing or operating electrically powered machinery;
- Operation of improperly maintained equipment; and
- Bites or stings from ants, wasps, bees, insects, or snakes.

Personnel with a history of allergic reactions to bee or wasp stings are required to notify the SSO of this condition, and to maintain a supply of physician-approval medication on-site during site activities. Physical hazards due to weather-related conditions are described in Section 9.0.

## 5.0 Employee Training Requirements

CEC personnel who participate in investigative activities are required to meet the minimum training standards outlined in 29 CFR 1910.120 titled, "*Hazardous Waste Operations and Emergency Response*." Documentation confirming these requirements (training certificates, training rosters, etc.) for CEC employees is kept on file with the CEC Health and Safety Manager.

Prior to startup of investigative activities, a pre-program briefing will be presented to all field personnel and subcontractors by the SSO or Project Manager. The pre-program meeting will cover topics listed on the Safety Meeting Form in Appendix A. Attendance at the pre-program meeting will also be recorded on the form in Appendix A.

Any other health and safety-related topics that arise prior to program startup will also be discussed at the pre-program briefing. Issues that may arise during implementation of the on-site activities will be addressed during daily "tailgate" safety meetings (Appendix A). Any changes in procedures or site-specific health and safety-related matters will be addressed during these meetings, documented by the SSO and incorporated into the HASP as an appendix.

## 6.0 Site Control

CEC will define and identify the following areas at the work site during investigative activities and specify the equipment, operations, and personnel in the areas, as defined below. Only authorized investigative team members and individuals will be allowed within work areas during site activities. Site security will be performed by the SSO or their designee.

### 6.1 Zone 1: Investigation Exclusion Zone

The exclusion zones are the zones where contamination exists or could occur. Workers allowed in the exclusion zone include WPSC and CEC personnel and subcontractors. All persons not affiliated with these firms and agencies are considered visitors. All people working within an exclusion zone will wear the prescribed level of protection. In areas of the site with significant industrial activities and/or traffic, yellow "caution" tape will be used to define the exclusion zone both visually and spatially. All persons entering the investigation exclusion zone will be briefed on the information contained on the Safety Meeting Form, must sign the form indicating they have been brief on health and safety issues, and must have proper medical documentation. Medical documentation includes physician approval to work and certificates for 40-hour safety training and annual 8-hour refresher courses.

**6.2 Zone 2: Contamination Reduction Zone**

The area between the exclusion zones and the support zone is the contamination reduction zone (CRZ). This zone provides a transition between a contaminated area and the support zone. The CRZ serves as a buffer to further reduce the possibility of the clean zone becoming contaminated. It provides additional assurance that the physical transfer of contaminated substances on people, equipment, or in the air is limited through a combination of decontamination, distance between exclusion and support zones, air dilution, zone restrictions, and work functions. Decontamination stations will be established within the contamination reduction zone. Decontamination procedures are described under Section 11.0 herein. Waste materials resulting from site activities (contaminated protective clothing, etc.) will be containerized within the CRZ and properly disposed.

**6.3 Zone 3: Investigation Support Zone**

This area is outside the zone of contamination. The support zone shall be protected against contamination from the work site. The functions of the area include:

- An entry for personnel, material, and equipment;
- An exit area for decontaminated personnel, materials, and equipment;
- A storage area for clean safety and work equipment; and
- An area for rest breaks, the consumption of food and beverage, and all other activities.

**7.0 Safe Work Practices**

A list of safe work practices (SWPs) will be conspicuously posted on-site. At least one copy of this HASP will be available at each site. A review of SWPs and/or any necessary changes in these practices will be performed during daily “tailgate” safety meetings given by the SSO (Appendix A).

**7.1 General Safe Work Practices**

- All field personnel, inspectors, etc. will enter designated exclusion zones only through the CRZ. All personnel leaving an exclusion zone must exit the exclusion zone through the CRZ and pass through the CRZ decontamination procedure;

- Only those vehicles and equipment required to complete work tasks will be permitted within an exclusion zone (i.e., drilling rigs, support trucks, etc.). All nonessential vehicles will remain within the support zone;
- During on-site activities all personnel will be required to wash their hands and face before eating, drinking, smoking, or applying cosmetics;
- All personnel will be required to wash their hands and face as a minimum at the end of their shift before leaving the job site. Hands and face will also be washed during breaks;
- Equipment will not be placed on potentially contaminated surfaces;
- Field survey instrumentation (i.e., OVA, air sampling pumps, combustible gas meters, etc.) will be kept in a clean and secure location when not in use;
- Portable eyewash stations will be located in the restricted-access areas near work activities;
- Contact lenses will not be worn by personnel using air-purifying or air-supplying respirators;
- Food and beverages will not be permitted or consumed in the exclusion zone or CRZ. Possession or use of tobacco products and the application of cosmetics are also prohibited in these areas;
- No matches or lighters will be permitted in the exclusion zone or CRZ;
- Contaminated protective equipment, such as respirators, hoses, boots, disposable protective clothing, etc., will not be removed from the exclusion zone or CRZ until it has been cleaned, or properly packaged and labeled;
- All personnel will avoid contact with potentially contaminated substances. Walking through puddles or mud, or kneeling on the ground, should be avoided whenever possible;
- Employ the buddy system when performing any activity within a defined exclusion area; do not work within any exclusion zone without a co-worker/partner;
- Material Safety Data Sheets (MSDS) will be maintained at each site, for any chemicals brought onto that site;
- Field personnel must observe each other for signs of toxic exposure and heat/cold illness. Indications of adverse effects include, but are not limited to:
  - Changes in complexion and skin discoloration;
  - Changes in coordination;

- Changes in demeanor;
  - Excessive salivation and pupillary response;
  - Changes in speech pattern.
- 
- Field personnel are cautioned to inform each other of non-visual effects of illness such as:
    - Headaches;
    - Dizziness;
    - Nausea;
    - Blurred vision;
    - Cramps;
    - Irritation of eyes, skin, or respiratory tract.
- 
- If any indications of explosivity or unusual conditions are observed, exit immediately and report to the SSO or Project Manager.

### 7.2 Heavy Equipment

Heavy equipment can represent a substantial hazard to workers. In general, requirements for motor vehicles and material handling equipment are provided in the Construction Industry Standards 29 CFR 1926, Subpart O. Only qualified/licensed people are to operate heavy equipment. The following SWPs are to be followed by CEC personnel when working around, or overseeing subcontractors using, heavy equipment (drilling rigs, front end loaders, backhoes, etc.):

- Use common sense, never walk directly in back of, or to the side of, heavy equipment without the operator's knowledge;
- Hard hats, steel toe boots, and safety glasses are to be worn at all times around heavy equipment. Other protective gear as specified herein is also applicable;
- Remain alert at all times;
- Maintain visual contact at all times;

- Establish hand signal communication when verbal communication is difficult. Determine one person per work group to give hand signals to equipment operators;
- Be aware of footing at all times;
- Be sure that no underground or overhead power lines, sewer lines, gas lines, or telephone lines, will present a hazard in the work area;
- Keep all non-essential personnel out of the work area;
- Keep all heavy equipment that is used in the exclusion zone in that zone until the job is done. Completely decontaminate such equipment within the designated vehicle decontamination pad.

### **7.3 Electrical**

All electrical wiring used during the investigative activities will satisfy the requirements of 29 CFR 1926, Subpart K, and any applicable local electric codes; all wiring must be done by a licensed electrician.

### **7.4 Trip And Fall Hazards**

Workers will be apprised of any potential trip hazards through daily "tailgate" health and safety meetings (Appendix A). Whenever possible, trip and fall hazards will be eliminated or clearly identified with yellow "caution" tape. Areas on the site which are not level will be regraded, if possible, prior to initiating activities in an effort to limit trip and fall hazards. Impalement hazards to workers will be eliminated as soon as they are identified.

### **7.5 Noise Pollution**

Workers will be protected from excessive noise exposure through equipment maintenance and hearing conservation programs that comply with 25 CFR 1910.95. Workers will utilize ear plugs and/or muffs should excessive noise be encountered.

### **7.6 Sanitation**

Provision of potable water, drinking cups, non-potable water, toilet facilities, washing facilities and other sanitation requirements will be in compliance with specifications of OSHA 1910.120 (n).

### 7.7 Site Housekeeping

Household type debris generated during the field investigation will be contained daily in plastic bags and disposed of in an approved manner.

## 8.0 Personal Protection Requirements

Personal protective equipment (PPE) will be worn to protect field personnel from known or suspected atmospheric, soil, or water-borne contamination. The levels of personal protection to be employed for investigative activities have been selected based upon known or anticipated concentrations of contaminants that may be encountered, their chemical properties, toxicity, exposure routes, and contaminant matrix. Based upon the results of previous investigations at the sites, all tasks will initially be performed in Level D protection. Only PPE Levels C and D are presented in this HASP; if higher levels of PPE are required at a site, an appendix to the HASP detailing the issues and procedures associated with higher levels of PPE will be prepared before proceeding with the field work.

### 8.1 Designated Levels Of Protection

The two levels addressed in this HASP which may be used in the exclusion zone, and necessary PPE components, are as follows:

- LEVEL C:

The necessary PPE for Level C will be selected based upon the site conditions and work tasks and may consist of the following:

- Chemical-resistant clothing (one-piece Tyvek coverall, requirement for hood to be determined; one piece chemical splash suit; Saranex coveralls). Selection of garment to be based upon site conditions and work task;
- Outer Gloves (Nitrile);
- Inner Gloves (skin-tight Latex);
- Boots - chemical resistant to substances of concern, steel toe;
- Hard hat (face shield optional);

- Safety glasses, if not wearing full-face respirator;
- Full-face, air-purifying respirator, with organic vapor/acute gas/HEPA cartridge. Need for respirator to be determined by work area monitoring;
- Sleeves will be taped to gloves, and cuffs taped to boots, as applicable.

▪ LEVEL D (modified):

The necessary PPE for Level D will be selected based upon the site conditions and work tasks and may consist of one or all of the following:

- Shirt and long pants;
- Gloves (Latex);
- Boots/shoes, leather or chemical-resistant, steel toe;
- Safety glasses or chemical splash goggles;
- Hard hat.

Protection levels may be upgraded, downgraded, or modified as deemed necessary by the SSO or their designee, based upon work task or site-specific, safety-related factors, such as:

- Change in work tasks within a work area/exclusion zone; or work that begins on a different portion of the site;
- Change of season/weather;
- When temperature extremes or individual medical considerations (i.e., heat stress, medication, etc.) limit the effectiveness of PPE;
- Contaminants other than those previously identified are encountered;
- Change in ambient levels of contaminants;
- Change in workspace that affects the degree of contact with contaminants.



**8.2 Duration Of Work Tasks**

The duration of field activities involving the usage of PPE will be established by the SSO or their designee based upon ambient temperature and weather conditions, the capacity of personnel to work in the designated level of PPE (heat stress and cold stress; see "Environmental Surveillance of Work Areas," Section 9.0), and limitations of the protective equipment, i.e., ensemble permeation rates, life expectancy of air-purifying respirator cartridges, etc. As a minimum, rest breaks will be observed at the following intervals:

- Fifteen minutes midway between shift startup and lunch;
- One-half to one hour for lunch; and
- Fifteen minutes in the afternoon, between lunch and shift end.

All rest breaks will be taken in a clean area (e.g., support zone) after full decontamination and PPE removal. Additional rest breaks will be observed, based upon the heat or cold stress monitoring guidelines presented in Sections 9.2 and 9.3.

**8.3 Limitations Of Protective Clothing**

PPE ensembles designated for use during activities at the sites have been selected to provide protection against contaminants at known or anticipated concentrations in soil or liquid matrices. However, no protective garment, glove, or boot is chemical-proof, nor will it afford protection against all chemical types. Permeation of a given chemical through PPE is a complex process governed by contaminant concentrations, environmental conditions, physical condition of the protective garment and the resistance of a garment to a specific contaminant; chemical permeation may continue even after the source of contamination has been removed from the garment.

In order to obtain optimum usage from PPE, the following procedures are to be followed by all site personnel using PPE:

- When using disposable coveralls, don a clean, new garment after each rest break or at the beginning of each shift;
- Inspect all clothing, gloves, and boots both prior to and during use for:
  - Imperfect seams;
  - Non-uniform coatings;

- Tears;
  - Poorly functioning closures.
- 
- Inspect reusable garments, boots and gloves both prior to and during use for:
    - Visible signs of chemical permeation;
    - Swelling;
    - Discoloration;
    - Stiffness;
    - Brittleness;
    - Cracks;
    - Any sign of puncture; and
    - Any sign of abrasion.

Reusable gloves, boots or coveralls exhibiting any of the characteristics listed above will be discarded. PPE used in areas known or suspected to exhibit elevated concentrations of contaminants will not be reused.

## 9.0 Environmental Surveillance Of Work Areas

### 9.1 Air And Odor Monitoring

Air and odor monitoring will be performed during activities at the sites, as necessary, in order to protect field personnel from exposure to air-borne hazardous substances and health hazards and to determine appropriate levels of personal protective equipment for work tasks. Since air monitoring programs vary depending on the type of compounds known to be, or suspected to be, present at a site, specific air monitoring programs will be designed for each site. Components of the air monitoring program for each site will be based on the methodologies discussed in the following sections. Suggested air monitoring parameters, detection devices, and action levels for use in the site-specific air monitoring programs are presented in Table 3.

#### 9.1.1 Initial Air Monitoring

Initial air monitoring of exclusion zones/work areas will be performed prior to startup of activities in each of the individual work areas at a site. Initial air monitoring will be performed for the following parameters:

- Flammable atmospheres (combustible gas indicator);
- Oxygen-deficient atmospheres (O<sub>2</sub> detector);
- Levels of airborne organic contaminants (OVA or PID and benzene detector tubes, as applicable);
- Dust levels (visual); and
- Benzene, cyanide, ammonia and sulfuric acid (byproducts area).

These parameters will also be monitored at the beginning of each work day during activities at the sites, to identify background contaminant concentrations and to monitor for any immediately dangerous to life and health (IDLH) or other potentially hazardous situation which could develop during off-shift periods. The background odors present at the site will also be noted.

#### 9.1.2 Air Monitoring

Air monitoring will be performed during applicable field activities. At a minimum, monitoring will be performed at a site when:

- Work begins on a different portion of the site;
- Contaminants other than those previously identified are being handled;
- Excessive odors are being produced from the site operations; and
- A different type of operation is initiated.

Field survey instruments and sampling/monitoring intervals to be employed during work tasks in work areas are summarized in Section 9.1.3. Perimeter monitoring will be conducted only if breathing zone monitoring exceeds the initial action levels. The monitoring data will be recorded on daily log forms.

Since mixtures of VOCs may be encountered, and real-time field survey instrumentation may react to the total VOC mixture (positive interference, or false-positive readings), individual concentrations of VOCs of concern will likely not be determined by these instruments. For situations involving exclusively positive interference, it will be assumed that any VOC mixture detected will be made up entirely of the VOC with the lowest airborne exposure limit. This means that the lower applicable values of the American Conference of Governmental and Industrial Hygienists (ACGIH) threshold limit values (TLVs) or OSHA permissible exposure levels (PELs) for the volatile organic substances described in Section 4.0 will be used to establish the measured atmospheric concentrations at which respiratory protection levels will be changed (increased or decreased). Action levels are provided in Table 3. Direct readings instruments will not be used to monitor for VOCs which cannot be detected (or be poorly detected) by the field survey instrument (false-negative response, or negative interference).

#### 9.1.3 Air Monitoring Parameters And Survey Instrumentation

Air monitoring parameters, detection devices, and action levels are presented in Table 3. Air monitoring for VOCs and cyanide will be performed during water and soil investigation and sampling activities as applicable. The monitoring will be conducted at shoulder height (in the breathing zone) on those workers most likely to be exposed to potentially hazardous concentrations of contaminants. Monitoring for percent oxygen and combustible atmospheres will be conducted during soil investigation activities at waist height and near the ground surface (to determine the presence and accumulation of heavier-than-air gases).

##### 9.1.3.1 Explosive Atmospheres:

- Instrument: Combustible Gas Indicator.
- Sampling Frequency: Start-of shift; as necessary (Section 9.1.2)
- Action Levels:
  - **<10% lower explosive limit (LEL).** Continue investigative activities;
  - **10%-25% LEL.** Continue investigative activities with caution as higher levels are encountered;
  - **>25% LEL.** Explosion hazard. Withdraw from area immediately.

### 9.1.3.2 Percent Oxygen:

- Instrument: Percent Oxygen Sensor
- Sampling Frequency: Start of Shift; as necessary (Section 9.1.2)
- Action Level:
  - **<19.5%** Upgrade to Level B with self-contained breathing apparatus (SCBA). NOTE: Combustible gas readings are not valid in atmospheres with <19.5% oxygen;
  - **19.5%-23.5%** Continue activities with caution. Deviation from normal level may be due to presence of other substances;
  - **>23.5%** Fire hazard potential. Discontinue investigation. Consult a fire safety specialist.

### 9.1.3.3 Organic Vapors:

- Instruments:
  - Flame Ionization Detector (FID) or,
  - Photoionization Detector (PID), and
  - Draeger Pump with benzene tubes.
- Sampling Frequency: Start-of-shift; as necessary (Section 9.1.2)
- Action Level:
  - Zero to 1 units of measurement (ppm) of organic vapors above background for a sustained period of 10 minutes. Benzene detector tubes should be drawn. If benzene concentrations exceeded 1 ppm at downwind perimeter, implement mitigative measures.
  - A sustained level of 1 unit of measurement (ppm) of organic vapors above background for 10 minutes. Notify SSO. Benzene detector tube should be drawn. If benzene concentration meets or exceeds 1 ppm, upgrade to Level C; continue monitoring, including benzene detector tubes. If benzene concentrations exceed 50 ppm, an upgrade to Level B would be required and work activities must cease (see second bullet below). Also, if downwind perimeter monitoring shows benzene concentrations above 1 ppm, implement mitigative measures.

- >10 ppm of organic vapors for a sustained period of 10 minutes (no benzene present), upgrade to Level C.
- If an upgrade to Level B is required (500 ppm), all work activities will stop, mitigative measures will be taken and WPSC will be notified prior to bringing in specialized equipment. In addition, if higher levels of PPE are required at a site, an appendix to the HASP detailing the issues and procedures associated with higher levels of PPE will be prepared before proceeding with the field work.
- Mitigative measures will be determined by the SSO based on actual conditions and may include ceasing work, reducing the excavation size, placing clean fill over contaminated soils, or other appropriate measures.

#### 9.1.3.4 Ammonia:

- Instrument: Draeger Tubes
- Sampling Frequency: As necessary (Section 9.1.2). At the beginning of each work shift and at least every 4 hours while working in the Byproducts Area. Frequency will increase if vapors are detected, as appropriate.
- Action Levels:
  - < 25 ppm Continue investigative activities;
  - >25 ppm Withdraw from area immediately and consult SSO.

#### 9.1.3.5 Sulfuric Acid:

- Instrument: Draeger Tubes
- Sampling Frequency: As necessary (Section 9.1.2). At the beginning of each work shift and at least every 4 hours while working in the Byproducts Area. Frequency will increase if vapors are detected, as appropriate.
- Action Levels:
  - < 1 ppm Continue investigative activities;
  - >1 ppm Withdraw from area immediately.

### 9.1.3.6 Cyanide:

- Instrument: Draeger Tubes
- Sampling Frequency: As necessary (Section 9.1.2), in conjunction with benzene tube sampling;
- Action Levels:
  - < 5 ppm Continue investigative activities;
  - >5 ppm Withdraw from area immediately.

### 9.1.3.7 Airborne Particulates:

- Instrument: Visual
- Frequency: Continuous operation
- Action Level: Mitigation
  - Mitigative measures to reduce dust will be selected by the SSO and may include wetting of soils, washing the asphalt of dust, reducing vehicle speed, or other measures.

### 9.1.4 Use And Maintenance Of Air Survey Instrumentation

All personnel who will be using field survey meters or personal air sampling devices will be thoroughly briefed on the operation, limitations, and maintenance of these devices. All maintenance and calibration procedures, including frequency of calibration, will be in strict accordance with the manufacturer's guidelines by a designated individual familiar with the devices. The OVA or PID, and combustible gas meter will be calibrated as recommended by the manufacturer. Any repairs, maintenance, or routine calibration of these devices will be recorded in an equipment maintenance logbook, which shall be signed by the servicing technician.

### 9.1.5 Odor Monitoring

Prior to the initiation of any activities, a brief coke byproducts odor training session for everyone working at the site will be conducted. The odor training session will include the following general topics: the four major dimensions of odor perception; the typical odors to expect at a coke plant; odor control mechanisms; the concerns expected with

high odor levels; and the 8-point odor scale. An odor scale of 1-8 (1 being weak and 8 being strong) will be used to quantify the level of odor detected at each monitoring point.

If odors reach a level of 4 in the general vicinity of the work area mitigative actions will be taken. These actions may include placing a clean soil cover or plastic tarp over the materials creating the excessive odor in between work shifts. Odor suppressing foam or liquid found to be effective in reducing PAH and hydrocarbon vapors and odors will be applied to the odor-causing materials during work operations. The odor suppressing foam or liquid may also be used in conjunction with the plastic tarp to control odors between work shifts.

### 9.2 Heat Stress Monitoring

Heat stress is probably one of the most common and more serious of illnesses that can occur during field activities. Heat stress is caused by several interacting factors such as environmental conditions, clothing, workload, physical condition and characteristics of the employee, and the type of PPE required for the work task. Dependent upon the type worn, PPE equipment can add considerable weight, increase the body's expenditure of energy, and reduce the body's normal heat-exchange mechanisms.

Heat stress may be of concern especially when the dry-bulb air temperature exceeds 70°F. The following control measures shall be used to help control heat stress if ambient temperatures above 70°F are expected:

- Provisions of adequate liquids to replace lost body fluids. Employees must replace water and salt lost from sweating. Employees must be encouraged to drink more than the amount required to satisfy thirst. Thirst satisfaction is not an accurate indicator of adequate salt and fluid replacement.
- Replacement fluids can be a 0.1 percent salt water solution, commercial mixes such as Gatorade or Quick Kick, or a combination of these and fresh water.
- Establishment of a work regimen that will provide adequate rest periods for cooling down. This may require additional shifts for workers or earlier/later work schedules.
- Cooling devices such as vortex tubes or cooling vests can be worn beneath protective garments.
- All breaks are to be taken in a shaded rest area.
- Employees will remove impermeable protective garments during rest periods.



- Employees will not be assigned other tasks during rest periods.
- To prevent heat stress, all employees will be informed of the importance of adequate rest, acclimatization, proper diet, health hazards, recognition of heat illness, and first aid.

Because the incident of heat stress depends on a variety of factors, all workers, even those not wearing protective equipment, should be monitored. For workers wearing permeable clothing (e.g., standard cotton or synthetic work clothes), follow recommendations for monitoring requirements and suggested work/rest schedules in the current ACGIH TLVs for Heat Stress. If the actual clothing worn differs from the ACGIH standard ensemble in insulation value and/or wind and vapor permeability, change the monitoring requirements and work/rest schedules accordingly.

### 9.3 Cold Stress Monitoring

Cold stress may be of concern, especially when a wind-chill-adjusted temperature of 10°F or less is expected. To control cold stress:

- Persons working outdoors in temperatures at or below freezing are in danger of frostbite. Extreme cold for a short time may cause severe injury to the surface of the body, or result in profound generalized cooling, causing death. Areas of the body that have high surface-area-to-volume ratios such as fingers, toes, and ears, are the most susceptible.
- Two factors influence the development of a cold injury: ambient temperature and the velocity of the wind. Wind chill is used to describe the chilling effect of moving air in combination with low temperature. For instance, 10°F with a wind of 15 miles per hour (mph) is equivalent in chilling effect to still air at -18°F.
- As a general rule, the greatest incremental increase in wind chill occurs when a wind of 5 mph increases to 10 mph. Additionally, water conducts heat 240 times faster than air. Thus, the body cools suddenly when chemical-protective equipment is removed if the clothing underneath is perspiration soaked.
- Local injury resulting from cold is included in the generic term frostbite. There are several degrees of damage. Frostbite of the extremities can be categorized into:
  - Frostbite nip or initial frostbite: characterized by sudden blanching or whitening of skin.

- Superficial frostbite: skin has a waxy or white appearance and is firm to the touch, but tissue beneath is resilient.
  - Deep frostbite: tissues are cold, pale, and solid; this is an extremely serious injury.
  - Systemic hypothermia is caused by exposure to freezing and rapidly dropping temperature. Its symptoms are visually exhibited in five stages: (1) shivering, (2) apathy, listlessness, sleepiness, and sometimes rapid cooling of the body to less than 95°F, (3) unconsciousness, glassy stare, slow pulse, and slow respiratory rate, (4) freezing of the extremities, and finally, (5) death.
- 
- Thermal socks and underwear that wick away perspiration, hard hat liners and other cold weather gear can aid in the prevention of hypothermia.
  - Blankets, warm drinks (other than caffeinated coffee) and warm break areas are essential.

In addition to the cold stress measures outlined above, personnel will be briefed on the dangers of cold stress and frostbite, and will be monitored during all rest breaks and field activities for signs of hypothermia or frostbite. Self-monitoring and co-worker monitoring (i.e., buddy system) will also be encouraged.

## 10.0 Respiratory Protection Plan

### 10.1 Employee Protection

Air-purifying respirators shall be used, where appropriate, to reduce employee exposure to airborne substances. The proper type of air-purifying respirator shall be provided for all CEC employees at the site.

### 10.2 Visitor Protection

Visitors authorized to enter the work area(s) must wear appropriate PPE within the work area(s) as approved by the SSO. Visitors are required to provide their own PPE.

Visitors who wish to enter the work area(s) must produce evidence that they have had a complete physical examination and respiratory protection training within the past twelve months prior to donning respiratory protection and entering the work area(s). This evidence must consist of a physician's letter authorizing the use of respiratory protection and copies of training certificates for OSHA-approved safety classes (40-hour and 8-hour annual refresher) as required by 29 CFR 1910.120.

The PPE worn by visitors shall enable them to avoid skin contact with contaminated or suspected contaminated surfaces.

### **10.3 Respirator Selection, Use, And Maintenance**

A full-face air-purifying respirator equipped with highly toxic particulate/organic vapor cartridge (color coded purple over black) has been selected for use, when necessary, during investigative activities. Respirators are to be used only in conjunction with breathing space air monitoring, with strict adherence to the action limits outlined. A respirator may only be used when the device affords protection from the substances being encountered. Respirators have been selected based upon the substances which may be present and the concentrations of these substances previously encountered at the site. If an air-purifying respirator cannot provide protection against all substances present at concentrations exceeding the action level, upgrading of respiratory protection to require a clean breathing air source will be required. Respirator cartridges and canisters used for Level C protection will be discarded, and fresh cartridges/canisters will be installed:

- After eight hours of use for cartridges;
- Upon experiencing increased resistance to breathing;
- Upon experiencing breakthrough of VOCs as determined by odor or irritation;  
or
- At the request of the respirator wearer.

Other limitations that preclude the use of air-purifying respirators are:

- Oxygen-deficient atmospheres (less than 19.5 percent oxygen);
- Concentrations of substances which may be immediately dangerous to life and health;
- Entry into confined or unventilated areas that may contain airborne contaminants that have not been characterized;

- Unknown contaminant concentrations or concentrations that exceed designated maximum use levels;
- Presence of unidentified contaminants; and
- High relative humidity (reduces sorbent life).

Respirators issued to individuals will be cleaned and disinfected at least daily, if used. Where respirators are used by more than one person, the respirator will be cleaned and disinfected after each use. Respirators will be inspected during cleaning, and any necessary repairs will be made at that time. Damaged respirators will not be worn. After cleaning, respirators will be placed in clean, plastic bags and stored in a clean location convenient to the work areas. The following representative respirator cleaning and inspection procedures are to be used during site activities.

- Daily Cleaning Procedures:
  - Respirator Disassembly. Respirators are taken to a clean location where the cartridges are removed, damaged to prevent accidental reuse, and discarded. For thorough cleaning, the inhalation and exhalation valves, speaking diaphragm, and any hoses are removed;
  - Cleaning. In most instances, the cleaning and disinfecting solution provided by the manufacturer is used, and is dissolved in warm water in an appropriate tub. Using gloves, the respirator is placed in the tub and swirled for a few moments. A soft brush may be used to facilitate cleaning;
  - Rinsing. The cleaned and disinfected respirators are rinsed thoroughly in water to removed all traces of detergent and disinfectant. This is very important for preventing dermatitis;
  - Drying. The respirators may be allowed to air dry on a clean surface. They may also be hung upside-down like drying clothes, but care must be taken not to damage or distort the face pieces;
  - Reassembly and Inspection. The clean, dry respirator face pieces should be reassembled and inspected in an area separate from the disassembly area to avoid contamination. Special emphasis should be given to inspecting the respirators for detergent or soap residue left by inadequate rinsing. This appears most often under the seat of the exhalation valve, and can cause valve leakage or sticking.

- After Routine Use in Exclusion Zone:
  - The mask may be washed/rinsed with soap and water;
  - At a minimum, the mask should be wiped with disinfectant wipes (benzoalkaloid or isopropyl alcohol), and allowed to air dry in a clean area.
  
- Air-Purifying Respirator Inspection and Checkout:
  - Visually inspect the entire unit for any obvious damages, defects, or deteriorated rubber;
  - Make sure that the face piece harness is not damaged;
  - Inspect lens for damage and proper seal in face piece;
  - Exhalation Valve - pull off plastic cover and check valve for debris or for tears in the neoprene valve (which could cause leakage);
  - Inhalation Valves (two) - screw off cartridges and visually inspect neoprene valves for tears. Make sure that the inhalation valves and cartridge receptacle gaskets are in place;
  - Make sure a protective cover lens is attached to the lens;
  - Make sure the speaking diaphragm retainer ring is hand tight; and
  - Don and perform negative and positive pressure checks.

The effectiveness of the respiratory protection program will be continuously monitored by the SSO. Monitoring of worker stress levels during activities that require respiratory protection will also be performed by the SSO.

All CEC personnel who will be taking part in investigative activities will be briefed on the proper use, maintenance, and limitations of air-purifying respirators prior to program startup and must also take part in a qualitative respiratory fit test to assure the proper fit of the device. Results of the qualitative fit test of field personnel will be recorded by the SSO, along with documentation of the respiratory protection briefing.

## **11.0 Decontamination**

All personnel performing work tasks in the exclusion zone(s) must pass through the CRZ decontamination procedure, regardless of the work task or protection level used. All equipment and tools used within work areas will likewise undergo decontamination prior to removal from the CRZ. Final inspection of excavating equipment, trucks, etc. prior to leaving the site is the responsibility of the SSO.

### **11.1 Personnel**

Decontamination procedures for work tasks requiring Level D will consist of placing all disposable outer wear into labeled trash containers; boots will be rinsed or brushed prior to entry into the support zone. The following representative decontamination procedure will be employed for those work tasks requiring Level C protection.

#### **Station 1: Segregated Equipment Drop**

Deposit equipment used on-site (tools, sampling devices and containers, monitoring instruments, radios, clipboards, etc.) on plastic drop cloths or in different containers with plastic liners. Tools and devices will be washed/wiped in a detergent solution and rinsed with clean water, then stored or serviced for reuse. Sampling tools and similar field equipment may require high-temperature water/steam wash. This station may be located adjacent to the CRZ decontamination line.

#### **Station 2: Outer Garment, Boots and Gloves, Wash and Rinse**

Scrub outer boots and gloves with decontamination solution, consisting of detergent and water. Rinse gloves, boots, and garment, with hand-pump spray bottle into plastic bucket or tub.

#### **Station 3: Outer Glove Removal**

Remove outer gloves and any accompanying tape. Tape should be placed in a container with a plastic liner. Reusable gloves will be cleaned and stored for future use.

#### **Station 4: Cartridge Change**

If a worker leaves the exclusion zone to change respirator cartridges, this is the last step in the decontamination procedure. Once the worker's cartridges are exchanged,

the outer glove and boot covers are donned and joints taped if required. The worker may then return to the exclusion zone.

### **Station 5: Respiratory Protection Removal**

Remove the respirator face piece, and place respirator in plastic-lined container for decontamination.

### **Station 6: Outer Garment, Boots, and Glove Removal**

Remove outer garment, boots, and inner gloves, in that order. The outer, disposable, chemically-resistant garment should be deposited in a plastic-lined container. Reusable protective garments will be removed and stored for future use.

Upon removal of inner protective gloves, boots, and protective clothing, personnel will pass into the clean portion of the CRZ for washing of hands and face. Respirators will be stored within the clean area after being decontaminated. Outer boots and coveralls will be stored or discarded and not worn within the support areas.

Personnel will pass through the decontamination procedure prior to eating lunch, and when leaving the CRZ.

## **11.2 Equipment And Vehicles**

Tools and equipment will be washed with decontamination solution, rinsed with clean water and, if required, steam cleaned prior to reuse, to the satisfaction of the SSO. The tools and equipment will, likewise, be decontaminated prior to leaving the site. Support vehicles will be decontaminated, as deemed necessary by the SSO.

## **11.3 Decontamination Personnel**

Personnel working in the CRZ will wear, as a minimum, one less level of protection than on-site workers. However, Level D protection will be worn during decontamination if on-site personnel are in Level D. Decontamination personnel will be required to pass through the decontamination procedure prior to leaving the CRZ.

### 11.4 Decontamination Waste Disposal

Solid wastes (discarded protective clothing, tape, etc.), drill cuttings, decontamination water, and purging water will be containerized and disposed of by WPSC in accordance with all applicable regulations.

### 11.5 Contaminant Containment

A housekeeping program will be implemented during the course of the investigation to avoid the spread of any contaminants beyond the exclusion zone/work area(s). The program shall include:

- Periodic policing of the work areas for debris, including paper products, cans, etc.;
- Periodic changing of wash and rinse water for hand, face, and equipment; and
- Periodic removal (weekly minimum) of all garbage bags and containers used to dispose of disposable clothing. Contaminated materials will be disposed of in an approved manner.

Decontamination water generated during all field activities will be containerized to prevent exposure to the environment. WPSC will dispose of these materials in accordance with all applicable regulations.

## 12.0 On-Site Emergency Plan

All CEC employees performing work at the site must participate in the CEC sponsored comprehensive health-monitoring program per 29 CFR 1910.120 and 1910.134.

Communication between work areas and the support zone will be via verbal communication, auto horn, or walkie-talkie. Communication with outside emergency and medical facilities will be via on-site mobile telephones. Portable mobile phones will be kept on-site during the field activities.

A step-wise approach for dealing with emergency situations has been developed to address the immediate needs of on-site emergency activities. This plan describes the



action that shall be implemented in the event of an emergency. Personnel responsible for ensuring adherence to the HASP are identified in Table 1. In addition, a list of emergency telephone numbers is presented in Table 1.

### 12.1 Medical Emergencies

In the event of any serious injury or chemical exposure requiring movement of the patient to the hospital by ambulance, the SSO or their designee will contact the WPSC Guard Gate personnel who will then contact the hospital and the ambulance service while the victim is removed from the exclusion zone and through decontamination for pickup by the ambulance. The WPSC Guard Gate is manned 24 hours a day with procedures already in place with regard to emergency situations. **A list of emergency telephone numbers will be conspicuously posted at a designated location in the support zone.** The list of emergency telephone numbers is provided as Table 1.

In the event of chemical exposure requiring emergency treatment, all personnel within the affected work area will be evacuated, along with removal of the victim, until an investigation by the SSO is conducted and the area declared safe for work to continue. Personnel will assemble at the CRZ upon evacuation. An emergency report and OSHA 101 Form must be completed by the SSO and a copy provided to WPSC for each instance of employee injury or possible exposure (see Appendix B).

A first aid kit for use on minor cuts, abrasions, etc. will be kept on-site.

### 12.2 Fire Or Atmospheric-Related Release

In the event of fire or atmospheric release requiring the evacuation of more than an individual work area, the evacuation signal will be given (via auto horn) and all site personnel will assemble at the CRZ or other agreed-upon location. Depending upon the type and magnitude of the emergency, the appropriate emergency response organizations will be notified including the local fire and police departments.

Information to be supplied to emergency response personnel will include the nature of the emergency, area involved in the emergency situation, if known, presence of toxic or flammable substances which may be encountered, and other pertinent information. Personnel will not be permitted into the exclusion zone/work area until the emergency is resolved, and the all-clear signal is given by the SSO.

## **Health and Safety Plan**

Steubenville East Coke Plant  
Follansbee, West Virginia

As discussed in Section 9.1.3.1, combustible gas measurements will be performed during on-site activities. If combustible gas concentrations reach 25 percent of the LEL during investigative operations, personnel will evacuate the work area and the SSO will be notified. Work will not proceed until concentrations of combustible gas return to below 25 percent LEL.

To prevent potential fire hazards, all vehicle or equipment refueling will take place off-site. Dry chemical fire extinguishers (A, B, C type) will be kept aboard equipment. Subcontractor equipment and vehicles will be required to meet the pertinent sub-parts of the general Construction Industry Standards, OSHA 29 CFR 1926-1910.

**Table 1**  
**List of Emergency Telephone Numbers**  
**Steubenville East Coke Plant**  
**Follansbee, West Virginia**

Personnel	Position	Phone Number
<b><u>WPSC Personnel</u></b>		
Bill Polomik	Environmental Coordinator II	(740) 283-5663
Kevin Quattrochi	Environmental Engineer and Technical Services	(740) 283-5631
Bud Smith	Manager, Environmental Control	(304) 234-2662
<b><u>CEC</u></b>		
Mary Guinee	Health and Safety Manager	(412) 429-2324
Rob Dlugos	Site Safety Officer	(724) 327-5200
Dave Olson	Project Manager	(724) 327-5200
Jim Nairn	Project Advisor	(412) 429-2324
<b><u>USEPA Region III</u></b>		
Estena McGhee	Environmental Engineer	(215) 814-3433
Joel Hennessey	Geologist	(215) 566-3390
<b><u>Emergency Personnel</u></b>		
WPSC Guard Gate		(304) 283-5632
WPSC Ambulance		(304) 283-5606
WPSC Dispensary		(304) 283-5603

**Table 2**  
**Health Effects of Chemical Hazards**  
**Steubenville East Coke Plant**  
**Follansbee, West Virginia**

Chemical/ Chemical Class	Health Effects
<u><b>PAHs (except Naphthalene)</b></u>	Irritant to eyes, skin, and respiratory tract; dermatitis on areas exposed to PAHs and tarry substances; increased risk of lung, kidney, and skin cancer over long term exposures.
<u><b>Naphthalene</b></u>	Headache, eye irritation, nausea, excitement; prolonged exposure causes eye injury, jaundice, and kidney failure; non-carcinogenic.
<u><b>PCBs</b></u>	Acne-like lesions and rashes, possibly liver cancer and reproductive and developmental effects.
<u><b>BTEX</b></u>	Central nervous system depressants causing dizziness, headache, weakness, irritation to eyes and mucous membranes; create intoxication type symptoms including euphoria, depression, narcosis and coma; prolonged contact causes dermatitis on exposed areas.
<u><b>TPH</b></u>	Hallucination after inhalation, parasthesia, muscle weakness, motor neuropathies, and anorexia; TPH is not considered a carcinogen.
<u><b>Ammonia</b></u>	Dermal contact or inhalation could cause burns on skin, eyes, throat or lungs which could lead to permanent blindness, lung disease or death. Ingestion could cause burns in the mouth, throat and stomach.
<u><b>Cyanide</b></u>	Parasthesia, abdominal pain, tachycardia, cyanosis are common for acute exposures; optic atrophy and pernicious anemia are common for chronic exposures; cyanide is highly toxic; toxicity is dependent on the form of cyanide; is not considered a carcinogen.
<u><b>Arsenic</b></u>	Chronic exposure causes hyperpigmentation, gastrointestinal toxicity, peripheral nervous system neuropathy, anemia, skin lesions, and vascular disease; poisoning causes liver and kidney injury and disturbances of CNS; known human carcinogen.
<u><b>Barium</b></u>	Gastroenteritis, muscular paralysis, ventricular fibrillation, irritation to mucous membranes and skin, hypertension, and reversible pneumoconiosis; in general acute exposures to barium is considered moderately toxic; barium is not a carcinogen.
<u><b>Cadmium</b></u>	Stomach irritation including vomiting and diarrhea; kidney and bone damage; possible human carcinogen.
<u><b>Chromium</b></u>	Hexavalent form most toxic causing skin ulcers, lung cancers; trivalent chromium is an essential human nutrient; hexavalent chromium classified as a carcinogen.
<u><b>Lead</b></u>	Toxic effects in brain and CNS, the peripheral nervous system, kidneys, and hematopoietic system; causes anemia; increased blood pressure in adults.

BTEX: Benzene, toluene, ethylbenzene, and xylenes.

CNS: Central nervous system.

TPH: Total petroleum hydrocarbons.

PAH: Polynuclear aromatic hydrocarbons.

**Table 3**  
**Air Monitoring Parameters**  
**Steubenville East Coke Plant**  
**Follansbee, West Virginia**

Air Monitoring Equipment	Exposure Limits	Action Levels	Action
<b><u>Explosive Atmospheres</u></b>			
LEL Reading		< 10%	Remain in Level D protection
LEL Reading		10% - 25%	Remain in Level D protection; use caution as higher levels encountered
LEL Reading		≥ 25%	Withdraw from work area; ventilate work area
<b><u>Percent Oxygen</u></b>			
Percent O <sub>2</sub> Sensor		< 19.5%	Upgrade to Level B w/ SCBA
Percent O <sub>2</sub> Sensor		19.5% - 23.5%	Remain in Level D protection
Percent O <sub>2</sub> Sensor		> 23.5%	Potential fire hazard; withdraw from work area
<b><u>Volatile Compounds</u></b>			
PID Reading		<1 ppm	Remain in Level D protection
PID Reading		≥1 ppm for 10 minutes	Draw benzene Draeger Tube
Benzene Tube		<1 ppm	Remain in Level D protection
Benzene Tube		≥1 ppm	Let work area vent or upgrade to Level C protection
Benzene Tube		≥50 ppm	Let work area vent or upgrade to Level B protection
PID Reading		≥10 ppm for 10 minutes AND benzene tube <1 ppm	Assume naphthalene present at concentrations ≥ 10 ppm; upgrade to Level C protection.
PID Reading		≥500 ppm for 10 minutes	Let work area vent or upgrade to Level B protection
<b><u>Other Compounds</u></b>			
Cyanide Drager Tube	NIOSH ST= 5ppm OSHA TWA = 10ppm IDLH = 50ppm	Non-Detect ≥5 ppm	Remain in Level D protection Discontinue field activities until cyanide levels drop below 5 ppm
Ammonia Drager Tube	NIOSH TWA=25ppm OSHATWA=50ppm NIOSH ST=35ppm IDLH=300ppm	≤25 ppm ≥25 ppm	Remain in Level D protection Discontinue field activities until ammonia levels drop below 25 ppm and contact SSO
Sulfuric Acid Drager Tube	NIOSH/OSHA TWA=1ppm IDLH=15ppm	≤1ppm ≥1ppm	Remain in Level D protection Discontinue field activities until sulfuric acid levels drop below 1 ppm and contact SSO

LEL: Lower explosive limit.  
PID: Photo-ionization detector.  
TWA - 8-hour unless otherwise noted.  
IDLH - Immediate danger to life and health

ppm: part per million.  
SCBA: Self-contained breathing apparatus.  
ST - 15-minute unless otherwise noted

**APPENDIX A**

**SAFETY MEETING FORM**

## **SAFETY MEETING**

Prepared by \_\_\_\_\_ Client Wheeling-Pittsburgh Steel Corporation

Project RFI Investigative Activities Date \_\_\_\_\_

Project Number 210052 (3000)

Work Location Steubenville East Coke Plant, Follansbee, West Virginia

Type of Work to be Done \_\_\_\_\_

## **SAFETY TOPICS PRESENTED**

- Names of the SSO and the designated alternate;
- Site history;
- Hazardous substances which may be encountered during investigative activities, including their properties and symptoms of exposure as well as location of Material Safety Data Sheets (MSDS);
- Work tasks to be performed;
- Use and maintenance of environmental surveillance equipment;
- Action levels and identification of situations which require an upgrade or downgrade in levels of protection;
- Level of protection to be employed for work area tasks, including use, operation, limitations and maintenance of respiratory protection;
- Site control measures, including safe operating practices, communication, etc.;
- Physical hazards which may be encountered;
- Training requirements;
- Decontamination procedures;
- Personnel exposure emergency procedure (skin contact, inhalation, ingestion, falls, etc.);
- Potential or actual fire or explosion emergency procedure;
- Environmental accidents emergency procedure (spread of contamination outside exclusion zone);
- Emergency signals and/or codes;
- Location of the nearest medical facility and emergency phone numbers.

## **ATTENDEES**

**Signature and Date**

**Company**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**APPENDIX B**

**EMERGENCY REPORT**



**Emergency Report  
Steubenville East Coke Plant**

1. Date: \_\_\_\_\_
2. Time of Accident: \_\_\_\_\_
3. Climatic Conditions: \_\_\_\_\_
4. AGM Site Safety Officer: \_\_\_\_\_
5. Employee Injured: \_\_\_\_\_
6. Company Affiliation: \_\_\_\_\_
7. Social Security Number: \_\_\_\_\_
8. Insurance Company: \_\_\_\_\_
9. Number of Workers at Site: \_\_\_\_\_

Names of Workers

Company Affiliation:

1. \_\_\_\_\_
  2. \_\_\_\_\_
  3. \_\_\_\_\_
  4. \_\_\_\_\_
  5. \_\_\_\_\_
- 
10. Circumstances of the Injury/Emergency Action: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
  11. Emergency Actions Taken: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
  12. What first aid was provided? \_\_\_\_\_  
\_\_\_\_\_
  13. Was the AGM Project Manager contacted? \_\_\_\_\_  
If so, time: \_\_\_\_\_
  14. Ambulance Service Used: \_\_\_\_\_
  15. Hospital Used: \_\_\_\_\_
  16. Attending Physician: \_\_\_\_\_
  17. Company Representative Contacted: \_\_\_\_\_
  18. Contractor Representative Contacted: \_\_\_\_\_